The US Environmental Protection Agency (EPA), Office of Research and Development (ORD), National Health Effects and Environmental Research Laboratory (NEERL), located in Research Triangle Park(RTP), North Carolina, intends to award, on a sole source basis, under the authority of FAR 6.302-1, with the AB SCIEX, LLC for one (1) each LC Maldi Spotting System.

The instrument will be used in ongoing research that requires a system that would interface with the existing mass spectrometry instrumentation. The requested Eksigent-AB Sciex Ekspot MALDI spotter – Nano/Capillary HPLC system has been designed by Eksigent-ABSciex specifically to interface with AB Sciex MALDI-mass spectrometry hardware and software, including our AB-Sciex 4800 MALDI mass spectrometer.

The North American Industry Classification Code (NAICS) is 334516. The size standard for this code is 500 employees. THIS NOTICE OF INTENT is not a request for competitive proposals. No solicitation document is available. However, interested parties may identify their interest, BUSINESS SIZE and capability of meeting EPA requirements by submitting technical documentation to Garry A. Plear, Contract Specialist, at the office identified above, by e-mail plear.garry@epa.gov. The technical documentation must establish that the instrument to be provided meets all requirements. Anticipated award date will be in October 2012. Documentation must be submitted to Garry A. Plear by 3:00 PM, October 16, 2012 in order to be considered by EPA.

The technical specifications for the LC MALDI Spotting System are as follows:
The nano-HPLC sample fractionation and delivery system for the spotter, which includes: Ultra 2D, Micro Nano (part number, 950-00057), NanoLC-Ultra AS-2 Autosampler (620-00142), NanoFlex System Bundle (950-00070), Knauer Detector UV 2500 (930-00037), cHiPLC parts (804-00001, 804-00002, 804-00003, 804-00006, 804-00007, 804-00008, 8-CORE T5500 COMPUTER (5012067), a start up kit (801-00043), Ekspot MALDI spotter for Nano/Capillary LC (part number, 950-00091), Assy Adapter AB4800/AB5800 Target (800-00250), Accessory Kit, PAL MALDI (801-00050), OPTI-TOF 384wMALDI PLT INSRT (1016629), OPTI-TOF LC MALDI PLT INSRT (1018469), Caddy Jumpers (800-00408, 800-00421, 800-00389), FG, MALDI PLATE CLEANING KIT (4342532), FG, PEPTIDE MASS STAND KIT CAL (P2-3143-00), FG, MASS STAND KIT CAL AB SCIEX TOFTOF I (4333604), Software: ProteinPilot 4.0 Univ Perp 1 Core 1 Usr (5008009), Total of three years of warranty; installation and on-site 2-day training.

Recently, mass spectrometry-based techniques have been developed to simultaneously analyze large numbers of proteins in biological samples to provide a rapid protein expression profile. There are two mass spectrometers in our laboratory which are dedicated to the task of protein identification and quantification: (1) AB-Sciex 4800 MALDI mass spectrometer and (2) a Nano-electrospray-Linear Ion Trap Mass Spectrometer (LXQ from Thermo Fisher Scientific). The system described in this procurement request is to provide nanoflow and microflow-HPLC desalting, HPLC separation and fractionation of proteins and peptides and automatically spotting them on a MALDI-MS (matrix assisted laser desorption ionization - mass spectrometry) plate in

preparation for subsequent mass spectrometry analysis. Thus this unique system enhances and complements the functionality of the two existing pieces of laboratory equipment.

MINIMUM REQUIREMENTS

The instrument should meet the following minimum requirements to meet Agency needs:

(a). For a chip-based nano-HPLC column and trap column component of this system:

1. The nanoflow-HPLC system must be chip-column based to provide ultimate run-to-run retention time reproducibility and column-to-column reproducibility.
2. The ultra-low <1 nl dead volume in the connections between chip columns and the system to provide superior HPLC peak resolution and solvent gradient accuracy.
3. Configurable for direct injection, trap-elute and dual column applications. Research Core Unit requires this flexibility of operation to accommodate different sample work flows necessitated by sample diversity.
4. Use of separate modular trap-column- and column-chips, facilitating replacement of only the trap-column in case of clogging. This required feature is important for the overall ruggedness and cost effectiveness of analysis. Must enable simultaneous sample desalting as another sample is processed on the HPLC chip column.
5. Temperature control of each column from 25º to 50ºC. The temperature control is essential for the optimal HPLC peak resolution.
6. Built in nano-10 port switching valve. The 10-port vale is required for the flexibility of the analytical experiment design to connect multiple analytical system elements.

(b). For the nanoflow HPLC component of the system:

7. Dual high pressure binary gradient pumps (50-500 nl/min) and an additional isocratic (loading) pump (1-20 µl/min). This feature allows for dual trap/dual column applications for increased sample throughput.
8. High maximum backpressure (10,000 psi) for both the gradient and loading pumps. The high back pressure capability is required for stable chromatographic performance for small-particle-size high performance chromatography nano-columns.
9. Splitless (direct) pumps with flow monitoring and feedback. Such pumps guarantee flow rate accuracy and reproducibility independent of backpressure and viscosity.
10. Ultra low gradient delay volume < 30 nl. Such gradient delay volume is required to provide accurate gradient conditions.
11. Flow rate precision < 0.5% RSD in a nano-flow range of operation. The accurate flow rate is imperative for nanoflow chromatography. It makes data comparable for different HPLC experiments. It is required for quantitative analysis and differential proteomics.

12. Two built-in 10,000 psi range 10 port switching valves. These valves are needed to allow connectivity between different system components in multiple column chromatography experiments.
13. Peak-parking by rapidly changing the flow rate down to less than 10 nl/min. Peak parking extends mass spectrometry acquisition time for increased sensitivity or complex samples.
14. Software control fully integrated with Xcalibur (Thermo), Analyst (Applied Biosystems) mass spectrometry software. The Xcalibur and Analyst software control are required for the work performed with the two mass spectrometers in the Research Core Unit.
15. UV detector equipped with a flow cell suitable for the nanoflow HPLC flow range of the HPLC system.
16. Bench-top, compact footprint.

(c). For a nanoflow LC autosampler:

17. Programmable injection volume from 0.5 - 10 µl. This sample injection volume range is important to provide accurate and efficient injections for low-volume samples.
18. Precision of < 1% RSD for partial loop injections. The sample injection volume precision and accuracy is essential for differential and quantitative proteomics assays that will be performed in the Core.
19. Compatible with autosampler vials or microtiter plates.
20. Sample cooling down to 4°C to minimize sample decomposition.
21. Software control fully integrated with Xcalibur (Thermo), Analyst (Applied Biosystems) software. The Xcalibur and Analyst software control are required for the work performed with the two mass spectrometers in the Research Core Unit. The system must be fully compatible with the ABI Sciex 4800 MALDI-TOF/TOF mass spectrometer and the Thermo LXQ Linear Ion Trap mass spectrometer.
22. Bench-top, compact footprint.
23. The contractor shall provide a three year (total) extended warranty for each hardware piece, software, and firmware product delivered under this purchase order.
24. Provides Protein pilot (vs. 4.0) software for LC-MALDI-TOF/TOF protein identification.
25. The contractor shall provide instrument installation and on-site training.

A determination not to compete the proposed requirement based upon responses to this notice is solely within the discretion of the Government. Information received will normally be considered solely for the purpose of determining whether to conduct a competitive procurement or to proceed on a sole source basis. Point of Contact for this requirement is Garry A. Plear, Contract Specialist, at (513) 487-2054, or via e-mail at plear.garry@epa.gov. Questions must be submitted in writing to Mr. Garry A. Plear via e-mail. Telephone queries will not be honored.